THE SUPPLEMENTAL APPROPRIATION BILL FOR 1953

HEARINGS

BEFORE

SUBCOMMITTEES OF THE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

EIGHTY-SECOND CONGRESS

SECOND SESSION

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TUESDAY, JUNE 24, 1952.

ATOMIC ENERGY EXPANSION PROGRAM

WITNESSES

H. E. FOREMAN, MANAGING DIRECTOR, THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.
BURT L. KNOWLES, ENGINEER, THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.
J. D. MARSHALL, ASSISTANT MANAGING DIRECTOR, THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.

Mr. THOMAS. The committee will please be in order. We have the pleasure of having with us this morning H. E. Foreman, managing director, the Associated General Contractors of America; Mr. Burt L. Knowles, engineer with the same organization and J. D. Marshall, assistant managing director of the AGC.

These gentlemen have been nice enough to take time out from their busy day to come over here at our request and talk to us about the construction business generally, and give us a liberal education here in a few minutes; specifically give to the committee the benefit of their judgment and experience on the activities of the Atomic Energy Commission in connection with their construction programs.

Gentlemen, the committee has long been of the opinion that the construction program carried on by the Atomic Energy Commission—and I am referring purely to their method of operation rather than to the number of units or the types of units that they are building—has been a very expensive as well as a wasteful program. As I said in the beginning, we would like to go to school to you and have you give us some advice and the benefit of your thinking on this matter.

Mr. FOREMAN. Mr. Chairman, you have given us quite an order, but we shall endeavor to give you our views on construction matters generally and on general policies that our members embrace, and why they do so, and I shall endeavor to relate those particularly to what we know of the methods and practices of the Atomic Energy Commission.

Mr. THOMAS. That will be very helpful.

GENERAL STATEMENT

Mr. FOREMAN. First of all, I would like to point out that following the outbreak in Korea we empaneled a committee of our past presidents, going back about to 1940, together with our present officers and had a meeting with representatives of the Department of Defense, representatives of the AEC, the RFC, and anyone else we thought might have something to do with a construction program which would come along related to national defense.

We came up at that time with some statements as to what we thought and the one which I think should be recorded at the top of the list is that all defense construction be carried out through the normal channels of the industry, with fixed-price awarded after competitive bidding, wherever practicable, in continental United States and its Territories.

Contractors like to run their own jobs. On a fixed-fee type of contract they are under many restrictions of having to prove, many times, the necessity for an expenditure. It does not permit the contractor to exercise his own ingenuity and management to the same degree as when he has a price and it is his job and it is up to him to deliver on time and at the price. The words "wherever practicable" were placed in there because not always does the Government buy construction alone. Sometimes they buy time as well.

The decisions as to whether they shall buy the two are made by others than the contractors or the construction industry, namely: by the owner.

What I mean by buying time is this. They wish to start before they have plans and specifications in order to get some preliminary work done while they are drawing plans and the two overlap, saving a certain amount of time.

Also, you get into the question of overtime and Sunday work, things of that kind, which cost additional money for overtime rates, and so forth. But if it is determined by the owner that the time saved is worth the cost, why, that is up to the owner.

We have issued two pamphlets which may or may not have come to the attention of the committee. If not, I should like to present them, because they will come to your attention sooner or later, I am sure.

Mr. Marshall is present with us today. I took the liberty of asking him to come here and I would like to explain that he is presently, in addition to his position with our association, serving on the Construction Industry Stabilization Commission, which is the construction section of the Wage Stabilization Board. He has had many problems come to him in connection with those which arise on these atomic energy projects. I thought he might be useful to the committee.

Mr. THOMAS. We are delighted to have him here with us.

Mr. FOREMAN. The first of these pamphlets emphasizes our philosophy and policy of advocating that the competitively bid, lump-sum contract be used as a safeguard of public funds wherever practicable.

I think normally, in meeting regular Government needs, in providing for some facilities such as roads, the competitively bid type of approach is best and gives the best protection to the public.

We realize, however, again, as I pointed out in connection with our statement here, that as a result of our conference, following the outbreak in Korea, there are sometimes circumstances under which the owner decides that he wishes to purchase something else in addition to the construction.

We also put out this other document called Undivided Responsibility, that advocates an over-all contractor to supervise the work and coordinate the various functions along the line.

Getting around to what we know of Atomic Energy Commission policies, we have a book which they put out 2 years ago, A Guide for Contracting and Construction and Related Engineering Services. When that was put out we secured several hundred copies and sent them around to each of our offices throughout the country. It oulines the way that they expect to do business and also gives a list of their offices where contacts should be made and indicates where contractors who wish to deal with them should file and what they should file.

That is the general policy. To the fullest extent feasible construction contracts are made on a lump-sum or unit-price basis using formal advertising procedures which are described.

They also say that special efforts shall be made to place contracts with small-business concerns competent to perform satisfactorily. Then it goes on to say that construction contracts are let on a negotiated basis, maybe on a lump-sum unit price, or on a cost-plus-fixed fee.

It describes that the over-all contractor may be a construction contractor or he may be an operating contractor, the man who is going to stay there after the construction has been completed, such as Dupont on the Savannah River project.

I should like to say that we feel that there should be an over-all construction man at that particular point. We believe that he can utilize many smaller contractors for individual parts of the work, a hospital, or some project which is more or less a copy of something which is regularly built in various parts of the country.

As to the plant itself, I must admit that I have never been on the site of an atomic energy installation; understanding that they have secret processes, I have never wanted to expose myself to a knowledge of the operation of those secret processes. There are always accusations of leaks and things of that kind and while I think I know what the construction problems are on a project, because quite a number of our members have worked and are working on atomic-energy projects in connection with some of their problems, I would prefer not to have too much knowledge of those secret processes.

I would like to say that our organization never approaches any owner in behalf of any particular member, to get him any work. That is not conceived to be our job. But if they do have the work, they do run into many problems, and one of the great problems that they run into is in connection with the handling of their labor relations. Mr. Marshall comes in contact with that almost every day.

Their projects run into astronomical figures, something that is well beyond the ordinary conception of a construction project. Half-a-billion-dollar or a billion-dollar project does not just happen anywhere else, nor has ever happened before. I must confess that I have no knowledge as to why they are of that particular size, but they are.

When they undertake a project on a given site, it requires somebody to organize the whole project, somebody who knows construction.

They have got to draw their labor from a large area. They take materials from an area as close as they can get them. But when you get into a project of that kind, it causes a terrific impact upon the market.

As to the project itself, there is a distinction that we have to make between the actual production plant and the auxiliary work that goes along with it. We know about the site. We know that they must build railroads into it; that they must have drainage; they must have sewerage; they must have highways, and, presumably, hospitals and maybe cites. In some places they do have cities and in some places they do not.

Mr. THOMAS. And power plants.

Mr. FOREMAN. But, as to the plant itself, they tell us that those are never duplicated. The design must be based on the site that is developed, and each installation is built differently on a somewhat different principle. I am simply repeating what I have heard. I have not been there myself.

ATOM C ENERGY COMMISSION CONSTRUCTION EXPERIENCE

Mr. THOMAS. If I may interrupt you at that point, they have been doing that type of work for 10 years, and I doubt that there is too much variation between plants. One might be a little larger than another, but the basic principle is one and the same.

Mr. FOREMAN. As I said, I just do not know. I have not been there. But where you have a project where they are putting pressure on to get it completed within the very shortest possible time, on a basis where the owner states that they cannot make advance plans, the only way you can do that presumably is to start with no plans and simply run your railroad sidings in, and so forth. I do not know how anybody could make a bid on such a basis, without putting a great many contingencies in there.

Mr. THOMAS. Mr. Foreman, now you are getting down to the meat in the coconut. Any organization which has been building similar units for 10 years, have they any good reason why they could not have plans and specifications prepared for any future construction?

Mr. FOREMAN. If they are reproducing something similar to what they have built in the past, it is obvious that they have plans that could be modified. I do not know what they are going to build.

Mr. THOMAS. The disturbing thing is, I am afraid they do not know, either.

Mr. FOREMAN. It is hard to bid on such a basis.

Mr. THOMAS. Here is a program that is going to cost for construction and equipment in the neighborhood of $3 billion-plus. According to their own statement, there will be between 200 and 300 different construction units, to use the parlance of the industry—buildings, and so forth. Under their present plans this program will take 6 years to complete.

The Commission alleges, and they do so very strongly, that time is of the essence, even though it is going to take 6 years to get a turnkey job. They further admit that they have no definite or specific plans to go by, and they further allege that to prepare specific plans and specifications would delay them approximately 2 years.

IMPORTANCE OF HAVING ENGINEERING PLANS AND SPECIFICATIONS IN ADVANCE

We have a feeling here in the committee that perhaps there may be a little delay, to start with, in getting their engineering plans and specifications, but once they get them down in black and white, so that they are able to advertise on a lump-sum competitive basis, in the long run, instead of delaying the project 18 months or 2 years, they might be able to come within the time period for completion and perhaps save some time, but certainly save a great many dollars by knowing in advance what they want and where they want it.

Now, that is our problem. What do you think about that?

Mr. FOREMAN. I shall try to conceive of a project costing a billion dollars. It takes an imagination, because I have never seen one. But assuming that it is going to have a great many operations in it;—for instance, we were told that there is a project coming out along the Ohio River, the location not yet determined, that will cost a billion dollars.

Mr. THOMAS. $1,200,000,000 is their present estimate, without any plans and specifications.

IMPORTANCE OF OVER-ALL CONTRACTOR

Mr. FOREMAN. And that there would be 34,000 mechanics on that site working at the same time in order to fit their schedule. It is entirely possible to use contractors and contract out some parts of it. But this one item of 34,000 people milling around is a problem. You have got to have a common labor policy. Otherwise, somebody would be offering them everything under the sun to leave this job and come over to that job. One contractor would say, "I have only got 2 weeks to go to finish and I will let you work 16 hours and pay you for 24 hours."

They would be robbing one for the other. You would need a boss man who would be the over-all contractor and who would have the say-so on the procurement of labor. And when you let these separate contracts, this fellow would have to go to this man and subhire these men back for this job—at the same price, of course, and see that they are not robbing each other and running the cost all out of kilter. Also I think pulling that many men out of an area is going to raise merry hob under any circumstances. It has in other locations.

But if they are all competing, independent of one another, they are going to have a chaotic condition. I think if you had an over-all construction contractor with rather broad prerogatives—I would hate to call this subcontracting, because when you use that word it usually is related to a plumbing contractor or an electrical contractor, but we are talking about contracting out an entire unit on a lump sum. This man could in turn subcontract to these specialists. But, in order to keep control of that labor problem, I think you need an over-all construction man, but within that fabric, if he has flexibility enough and can choose the subcontractors on some sort of prequalified basis.

I notice in the book here that they talk about a contract board; that each manager of an operation has to establish a contract board

consisting of qualified members of his staff, who shall make a selection of firms deemed to be of sufficient capacity and reputation and integrity to be worthy of consideration.

I think the over-all contractor on such a project should be a construction man and not an operator, because the operator is usually in another line. He is a manufacturer. He is dealing with another line of unions than you have to deal with when you are operating in the construction field, and he does not have the feel of that proposition. But, if he can be given the prerogative of letting these unit contracts within the fabric, then I think you have sufficient protection through renegotiation which applies to all this work now, so that nobody is going to get very rich on such a job.

PROPOSAL TO ALLOW 6-MONTH LEAD TIME FOR ARCHITECT-ENGINEER PLANS

Mr. THOMAS. What about the lost motion, the waste of labor in getting started without any plans and specifications? A construction contractor is handed some plans on Tuesday morning that the architect-engineer drew Monday night—I am giving a very difficult example—he works from hand to mouth, or on a day-to-day basis; he has no flexibility; he has no latitude; he has no room to display his talents.

Mr. FOREMAN. That is true. He must depend upon some engineering firm to turn over to him a complete set of plans.

Mr. THOMAS. What about the over-all proposition? Would the Atomic Energy Commission lose time, or would they save time, or would they just about come out even, if an architect-engineer firm were given a lead time of 1 to 6 months, to prepare plans and specifications?

I was talking to a rather reputable member of that profession, who is a member of your association. He came up with the idea that the Commission could give any good engineering firm a 6-month lead time and no more than 6 months, and that they could prepare detailed plans and specifications so that you could let these units out on a lump-sum competitive-bid contract and have a turnkey job completed within the length of time originally set by the Commission. Furthermore, it would save millions upon millions of dollars, handling it that way. Now, was he sound or unsound?

Mr. FOREMAN. He was making some assumptions that the operator and the Atomic Energy Commission are going to give that engineer the facts on which he can make designs. It is a cinch that the contractor must have a complete plan in detail before he is able to submit a bid.

Mr. THOMAS. And he is going to be able to save some money that way, as contrasted to working on a hand-to-mouth or 24/48-hour basis behind the engineering and design section.

Mr. FOREMAN. That is correct. That is what we claim in this book.

Mr. THOMAS. That is bound to be sound; is it not?

Mr. FOREMAN. I think that they can save time. It depends upon whether they want to pay the cost of doing both things at once.

Mr. THOMAS. Here is a construction program involving equipment power lines, auxiliary buildings, and every conceivable thing that

would go into it. They say it would slow them up 18 to 24 months to have plans ready in advance, so that they can go out and advertise for competitive bids. Do you think that is true?

Mr. FOREMAN. If they were not going to do a single thing else, I think it would be true. But, if they are going to start immediately on some of those plans and then divide it out on some of the later work, I think you could do both very well.

Mr. THOMAS. Is it not feasible to have reputable engineering-architect people sit down and in 6 months—not 18 months or 2 years—but in 6 months prepare plans and specifications? Of course, you know what they are going to do. They are going to prepare plans for the railroad sidings, for the power plant, the various units that go into the installation. But if they are given a 6-month lead time and are given the opportunity of working this thing out in advance with plans and specifications ready for the contractor, so that he can sharpen his pencil and submit a bid, over a period of 6 years, would they not have the plant just about completed and at the same time save millions of dollars?

ADVANCE PREPARATION OF SITE

Mr. FOREMAN. If you give an engineer 6 months' lead time, he certainly could prepare the site program, the drainage, the sewerage, the roads, the sidings from the railroads, and that sort of thing, and they could let a contract for those parts of it. While that is being done, presumably they could be drawing plans for the next project. That would be a following contract. Of course, the original contractor can only bid on what he has plans for.

Mr. THOMAS. It would eliminate the problem of having so much labor that they would be falling all over themselves, or pirating somebody else's labor. It would save time; and, equally important, it is bound to save hundreds of millions of dollars.

Mr. FOREMAN. You have got to have one contractor. An engineer cannot do it. It has got to be a contractor who can get some labor agreements through which everyone else will get his labor. You cannot take the engineer and let him try to arrange the labor program, the labor rates, and so forth.

Mr. THOMAS. He has got to stick to his last; he is going to do the engineering and architectual work.

Mr. FOREMAN. I am glad to hear you say that.

Mr. COTTON. Is there not some danger involved in what you call this preliminary work? Suppose you put in the railroad sidings, the sewerage, and then, when the whole project is completed, you find that the sidings are in the wrong place, that the sewerage is in the wrong place, and you have to do those items all over again. Is there any danger of that?

Mr. KNOWLES. The location of the structures is important, also.

Mr. FOREMAN. That is always a danger. It is assumed that there are always certain overriding decisions that have to be made as to the general location of the buildings, the railroad sidings, and that sort of thing. You cannot do much without having them in, but they are capable of being shifted without a great deal of difficulty.

Mr. THOMAS. You are assuming now that your architect-engineering firm is going to do the entire program for all of these various units on a given site?

Mr. FOREMAN. Yes.

COSTLY NATURE OF CHANGES IN PLANS

Mr. MARSHALL. If you do not start out with some predetermined plan, then some big brass, some great mind, some scientist will come along with another idea to change all this; but if you get it nailed down in a contract then it is more difficult to do that. It is like trying to build a house and having the man's wife come in every morning and tell the boys what to do.

Mr. THOMAS. In other words, you will save time by having it nailed down?

Mr. MARSHALL. Yes.

Mr. THOMAS. And you would save millions of dollars that way?

Mr. MARSHALL. There is no doubt about it.

TIME ELEMENT FOR COMPETITIVE BUILDING

Mr. COTTON. When you get to the point of what the chairman has called the contractor sharpening his pencil, let us assume that you have had 6 or 8 months, and you have gotten an engineering job to a point where you have specifications on one of these huge jobs, now long then is it going to take the contractor to sharpen his pencil and decide what his bid is going to be? Is that going to take several months or several weeks, or how much time?

Mr. FOREMAN. I would say that they could make a bid on 30 days' notice.

Mr. COTTON. Suppose a contractor this morning were invited to bid on a job that was going to cost $300 million—a third of a billion dollars. You do not propose to tell us that you can submit a bid in 30 days on that work?

Mr. FOREMAN. How long do they get on these dams for reclamation, Mr. Marshall?

Mr. MARSHALL. I think about 30 days.

Mr. FOREMAN. The Hungry Horse—how much did they have on that?

Mr. MARSHALL. I think they had about 6 weeks on that. What they do is to start with a bidders' conference. They call them all into a conference with the Engineers and they go over the big problems and get all of those solved first and then they have to arrive at the labor problem. After that conference then they go to work on the job.

Mr. THOMAS. Suppose it took a firm 30 to 60 days. That sounds like a reasonable period of time. Then they have plans and specifications. The contractor knows what he has to do and the time that it will take to do it. But suppose he goes onto the job without any plans and specifications. And he knows that whatever his cost, it is going to be paid for by the taxpayers. He has no latitude himself. He has to do what his bosses tell him and, as you pointed out, it may be the scientist has changed his mind and wants to have the job done differently, and so forth. How much time could we save by having

the whole proposition nailed down, even though it took 4 or 6 or 8 weeks to sharpen his pencil and submit a good estimate?

Mr. MARSHALL. He needs time to organize his job and once he has done that, he has eliminated the big part of the delay.

Mr. THOMAS. It is bound to save time from any angle that you look at it.

Mr. MARSHALL. That is right.

Mr. FOREMAN. I would like to qualify that answer; that is, if they let the job alone. But after he has made a bid on that particular specification, then a big mind shows up and decides that they will submit a change order, that they will substantially modify the job, then you have the same condition to meet all over again.

Mr. KNOWLES. That very thing has been one of the causes of criticism of contractors, that their work costs a lot, when it is really——

Mr. THOMAS. It is really no fault of their own?

Mr. KNOWLES. That is correct.

Mr. FOREMAN. It is a question of waiting for the owner to make up his mind. We have heard rumbles of people standing around and waiting for somebody to make up his mind as to whether the wall or the foundation should be 6 or 16 feet thick. He has to go out and recruit his people after they have made up their mind.

Mr. THOMAS. All the contractor wants to know is whether the walls are going to be 6 or 16 feet thick. It does not make any difference to him.

IMPORTANCE OF OVER-ALL CONTRACTOR

Mr. FOREMAN. That is right, as long as it stays that way. Now, there has been some talk about contingencies. I have been doing most of the talking, so I guess I raised the question of what contingencies must be added. The more complete the job, the smaller you can make the contingency. The more sure you are of your materials, the more you can reduce your contingency. The more sure you are of what your labor policy, your labor supply, your labor efficiency are going to be, the shorter you can make your contingency item.

If you have one contractor handling the collective bargaining for all of the labor contracts, for all of the people who are on the job, and for those who are going to be on the job, so that they will know that they are going to work so many hours and that one outfit is not going to work 60 hours while another one is working 48 hours, so that they will know that there will be no stealing of labor between jobs—the more sure you are of that, the further you can reduce your contingency and bring your lump-sum contracts down to a minimum, in our estimation.

There are always going to be some odds and ends where a fee contractor can be useful. But you have to have an over-all man to fill in between the units that are let out on the lump sum. I should think also that you would need—and again I point out that here you have something that is astronomical in its cost and in all of its aspects. You are going to have to get cement, you are going to have to get nails, you are almost going to have to denude the area of all its supplies. You have got to have a man in there who will act as a sort of central purchasing agent for these various items, so that when a carload of nails comes along to the site, it does not go to the wrong

building, so that the cement does not appear at someone else's foundation, and all that sort of thing.

I just want to emphasize that you do need this over-all construction man to see that that does not happen where you have so much going on at the same time.

Mr. THOMAS. In other words, what you are saying is, you need a construction man to do a construction job, just as you need a manufacturer to do a manufacturing job?

Mr. FOREMAN. That is right.

Mr. THOMAS. You would not want to have a construction man to do the operating after the factory was built.

Mr. FOREMAN. That is right.

Mr. THOMAS. I think you have made a very fine statement. Mr. Phillips, have you any questions?

TIME REQUIRED FOR PREPARATION OF PLANS

Mr. PHILLIPS. No; I think the gentleman has made a very clear statement, except on the one point which you asked about, Mr. Chairman. I should like to quote from the testimony concerning the estimate that was made of the time necessary for plans and specifications. This is from the hearings on the supplemental appropriations bill for 1953, page 28.

> This estimate is not based on detailed engineering design and specifications, inasmuch as 18 to 24 months would be required to secure such engineering estimates. The estimates, while necessarily preliminary, have been examined carefully and are considered to be reasonable.

Now, let us assume that there is a certain degree of urgency connected with this job. In the present situation, they start in and the designs are changed from time to time for a period of several years. But eventually the building is finished.

Suppose you were to wait a certain number of months until the designs were made and you got bids. By how much would the final date of completion be delayed? I appreciate that this is an impossible question for you to answer accurately, but I think the chairman's thought, and my own is that probably the eventual delay might be very little, if any. I do not know what would be the time of the delay or whether it would be delayed or not.

Mr. FOREMAN. We have a rule of thumb in estimating the time of planning as against the time of construction. That is, they are relatively the same. It takes about as long to investigate fully your needs and draw the plans as it does to construct. That is not always true, nor is it never true. It is just a sort of a rule of thumb that we hear discussed.

Mr. COTTON. I should like to ask something right on that point. I think you have already answered this, and I am unhappy about the answer. Let us assume that you have a job to do that is going to take several years. The question is whether you shall start in a haphazard way to do some of the parts of it now, or whether you will not turn a hand or dig a shovelful of dirt for 6 months in an effort to work out more definitely what you are going to do. Now, actually, would you lose some time by not starting anything until you know more exactly what you want to do?

Mr. FOREMAN. You will lose some time.

Mr. PHILLIPS. The saving would be in money and not in time?

Mr. FOREMAN. That is right.

Mr. COTTON. Then it all boils down to the fact that if time is the all-important factor, then you must start perhaps in a haphazard way and pay the price. But you think the question of expense would be helped by having some good construction man act as an over-all head to prevent duplication and squabbling on the job between groups, over labor and so forth?

Mr. FOREMAN. Various contractors have a board to determine the selection of those who will take care of the various parts of the job.

Mr. PHILLIPS. There is this point to be considered. In this program there are buildings that are designed to take care of certain details of the construction program. Some of those buildings may be somewhat different from others of similar nature that they have built. Some of them may be altogether new. They develop those as they go along. But there are a great many buildings, Mr. Thomas has pointed out, that are exactly the same or approximately the same, at each location. There is no reason in the world why those could not be put out under competitive bidding, is there?

Mr. FOREMAN. No, sir.

Mr. KNOWLES. Such as administration buildings.

Mr. THOMAS. Power plants.

Mr. PHILLIPS. School houses, power plants, administration buildings, certain types of shops, cafeterias, office-type buildings; there is no reason in the world why they should not be included, but when you come to the actual design for the plant operation——

Mr. KNOWLES. If you know where you want to put them on the site, that is important.

Mr. FOREMAN. And have them under the operation and control of a single person.

Mr. MARSHALL. If you have that, you can begin to let contracts for the various units and control them, whereas if you left that to the Atomic Energy Commission or to the awarding authority, they are usually subject to various pressures so that they cannot keep that kind of policy lined up.

Mr. FOREMAN. In a proposition of this kind, you have to have a lot of flexibility that you would not think of having on a proposal to fulfill the ordinary needs of the Government, such as post offices, things of that kind. But I do not think you need to be worried about losing any safeguards because of your lump sum. After all, you have your renegotiation that comes at the end of the job, and they are going to look at the figures pretty closely and decide how much the fellow is going to be able to take away from the job. They even do that for the fee, so far as that is concerned.

Mr. MARSHALL. The labor policy is very important. It is important that it be centralized on each project. Where they have had that problem at Oak Ridge and at Pasco and other places, where they have multiple contractors, most of them have had to depend pretty largely on this panel of the President headed by Will Davis, under a broad policy that was formulated. I have had some experience with jobs recently where the situation is really deplorable. It seems to be without control due to a number of other factors that are outside the influence of the contractor.

Mr. THOMAS. Can you give us an answer to the problem generally? Can you summarize it generally? I am referring to the problem as it faces the Commission.

Mr. MARSHALL. First of all, centralized control of the entire project. Then the development of sufficient information in advance to know how many men are going to be needed, and when, so that they can be brought in in an orderly way.

Mr. THOMAS. How can they reach that point of specific information without plans and specifications?

Mr. MARSHALL. They cannot.

Mr. THOMAS. It cannot be done?

Mr. MARSHALL. No, sir; it cannot.

Mr. THOMAS. And without that, it will be time consuming, a matter of lost motion and an expensive way as contrasted with normal production.

Mr. MARSHALL. You have the problem of recruiting labor. You have the housing problem. You have the problem of compensation for travel or, if this is located in an industrial community, you have the shock that comes to that community because of the labor problem.

Mr. THOMAS. Would it be possible to save time and money, if they took a competent engineer-architect firm and gave them 3 or 4 or 6 or 7 months' lead time, to do the over-all planning, and then start from there?

Mr. MARSHALL. I believe it would.

Mr. THOMAS. Is that the answer to the problem?

Mr. FOREMAN. I think so.

Mr. THOMAS. Gentlemen, I think that is the information we have been seeking. We thank you gentlemen for being so very helpful. It was very good of you to take time out from your busy day to come over and help us.

Mr. FOREMAN. We are very appreciative of the opportunity, Mr. Chairman.

Mr. THOMAS. Thank you very much.

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